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PROFESSOR LAWSON CAESAR RETIRES

The Seventy-seventh Annual Meeting of the Entomological Society of Ontario, held at Guelph on November 7 and 8 last, was featured by a complimentary dinner tendered to Professor Lawson Caesar who recently had retired from active professional work in entomology.



PROFESSOR LAWSON CAESAR

The dinner was held in the cafeteria of the Ontario Agricultural College on the evening of November 7. Many entomologists and biologists were present from Canada and the United States, as were also many farmers, government officials, and members of the College faculty. All had gathered to do honour to Professor Caesar, to testify to their appreciation of his work and to the esteem in which he is held as a friend and colleague.

Dr. G. E. Maheux, President of the Entomological Society of Ontario and Provincial Entomologist of Quebec, presided. Dr. Maheux brought his personal greetings and also those of the Premier and former Minister of Agriculture for Quebec, Mr. Godbout. Those seated at the head table and speaking

for the various governments, institutions, and entomological groups which they represented were: W. R. Reek, Deputy Minister of Agriculture for Ontario; Dr. G. I. Christie, President of the Ontario Agricultural College; Dr. Arthur Gibson, Dominion Entomologist, Ottawa; Dr. W. C. O'Kane, State Entomologist for New Hampshire; Dr. E. M. Walker, Head of the Department of Biology, University of Toronto; Dr. T. S. Houser, State Entomologist for Ohio; L. S. McLaine, Chief of the Plant Protection Service, Department of Agriculture, Ottawa; Professor J. E. Howitt, Head of the Department of Botany, Ontario Agricultural College; C. E. Petch, Dominion Entomological Laboratory, Hemmingford, Quebec, who spoke for Professor Caesar's former students; and Professor A. W. Baker, Head of the Department of Entomology, Ontario Agricultural College, who spoke for Professor Caesar's former colleagues of this department. These speakers brought greetings and tributes from Dominion and Provincial, Federal and State Departments of Agriculture, from various educational institutions and from American and Canadian entomologists and biologists. Each speaker paid tribute to Professor Caesar not only for his professional work but also for his many fine attributes as a man and a citizen. Many telegrams and letters of appreciation were received from entomologists throughout Canada and the United States and other countries. A selected few of these were read to the gathering.

In replying Professor Caesar referred to the fact that he had begun his professional work as a teacher of classics but had felt that he would find a more interesting and useful life in the field of science. He admitted that he still retained a great fondness for the classics and hoped now to have the opportunity to again read Virgil. He referred to the happiness which he had found in his work with students, farmers, and fruit growers and the satisfaction which resulted from the ready co-operation and many kindnesses which all had shown him.

Professor Caesar's friends will be glad to know that he is happy and in good health and all hope that he may long continue to be so. That he is keeping up his active interest in entomology is best shown by the fact that since his retirement he has completed a bulletin on household insects for the Ontario Department of Agriculture. We feel sure that this interest will continue.

Professor Caesar is continuing to reside in Guelph at 26 Elora Street where he will be delighted to hear from his old friends.

A. W. B.

A NEW ALBERTAN OLETHREUTID*

BY J. McDUNNOUGH,

Ottawa, Ont.

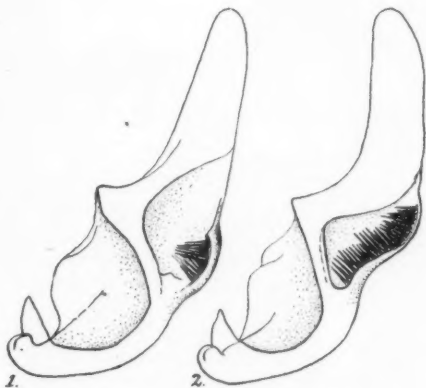
Recently I received for identification a series of an *Olethreutes* species from Mr. K. Bowman of Edmonton, Alta., which I was inclined to place as small *nordeggana* McD. Mr. Bowman, however, called my attention to the fact that whereas at Nordegg, with a greater altitude than Edmonton, *nordeggana* is taken about the middle of July; the present species does not occur around Edmonton until early August. Further study of more male genitalia of both forms revealed a small but apparently constant difference in the size of what Heinrich calls the "second spine cluster" at the neck of the sacculus. In view of these facts I believe there is justification for description and I take pleasure

*Contribution No. 2087, Division of Entomology, Science Service, Department of Agriculture, Ottawa.

in naming the new species after the collector who, over a long period of years, has added so greatly to our knowledge of the lepidopterous fauna of Alberta.

***Olethreutes kennethana* n. sp.**

Smaller than *nordeggana* and somewhat deeper in color, especially on the hindwings; the pale antemedian and subterminal areas less distinctly reticulate. Basal area, median band, subapical and tornal patches and apex of wing deep smoky-brown, overlaid (in fresh specimens) with a sprinkling of lighter brown scales. Outer margin of basal area irregularly projecting in the cell and angled inward in the submedian fold. Antemedian oblique band rather narrow, irregular, pale creamy-brown, bordered with silvery white. Median band bulging outwardly in cell with the two teeth of outer margin scarcely as well-defined as in *nordeggana* and tending to coalesce, narrowed above fold, at times partially



Right clasper of 1. *Olethreutes nordeggana* McD. 2. *O. kennethana* n. sp.

fused with tornal spot. On costa beyond median band four pairs of pale dashes, the first two pairs giving rise to silvery streaks which border the pale subterminal band, leaving a dark central costal patch; similar streaks, with a slight bluish cast, from the two outer pairs of dashes unite to form the outer border of the large subquadrate subapical patch which reaches nearly to apex of tornal patch and sends a streak to outer margin above anal angle. Fringes obscurely checkered with smoky and whitish. Secondaries evenly deep smoky, fringes pale, cut by a dark line beyond base. Palpi, head and thorax deep smoky with a few ochreous scales; patagia tipped with pale ochreous. Abdomen deep smoky. Expanse 15 mm.

Holotype—♂, Edmonton, Alta., Aug. 1, 1940, (K. Bowman); No. 5213 in the Canadian National Collection, Ottawa.

Allotype—♀, same data in Coll. Bowman.

Paratypes—6 ♂, 1 ♀, same data; 1 ♂, same locality, Aug. 3; three of these in Coll. Bowman.

In the male genitalia *SpC*² extends along the ventral margin of clasper for practically the entire distance between the costal bend of the sacculus and the cucullus whereas in *nordeggana* it is confined to a small patch of spines in the angle formed by the margin of clasper and the sacculus bend (neck).

NOTES ON THE MORPHOLOGY, LIFE HISTORY, AND ECONOMIC IMPORTANCE OF *SMICRONYX UTILIS* BUCHANAN. (COLEOPTERA, CURCULIONIDAE)

BY J. G. REMPEL AND WM. SHEVKEKNEK,

Regina College, Regina, Sask., and Dominion Experimental Substation, Regina

Smicronyx utilis is a small curculionid beetle which in Saskatchewan breeds in the seeds of *Iva axillaris* Pursh., or poverty weed. The weed is a native perennial found from the Saskatchewan-Manitoba border to British Columbia and south to Mexico. Although not as prevalent as some of the other bad weeds, it is one of the most persistent and one of the most difficult to eradicate. Owing to the fact that, in Saskatchewan, the percentage of infestation in well-developed seeds is very high, the plant appears to spread by rootstocks only. This facilitates eradication considerably.

The writers wish to acknowledge their indebtedness to Mr. L. L. Buchanan of the National Museum, Washington, D. C., for naming and describing the species, and to Mr. M. E. Phillips of Cornell University, Ithaca, N. Y., who kindly examined the literature for information on related species. Thanks are also due to Mr. L. B. Thomson, Superintendent, Experimental Substation, Swift Current, Sask., through whose efforts valuable information was obtained on the distribution of poverty weed in Saskatchewan.

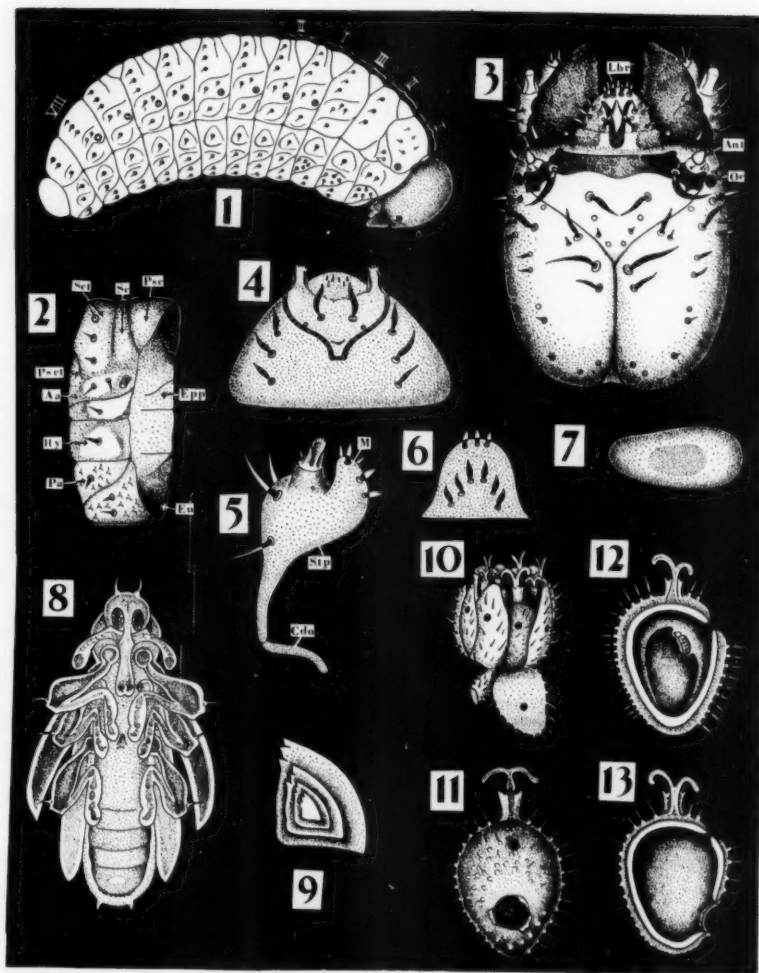
MORPHOLOGY OF THE IMMATURE STAGES

Egg. The egg (Fig. 7) is approximately 0.5 mm. in length by 0.2 mm. in width and elongate-ovate. The newly-laid egg is white, but the color changes later to yellow or yellowish-brown.

Larva (Fig. 1). Length 3 mm. Body white, legless and distinctly curved. Meso- and metathorax and first seven abdominal segments subdivided by transverse pleats. Head hypognathus, partly covered by prothoracic tergum. Head (Fig. 3) yellow; mandibles, anterior margin of frons and posterior margin of cranium brown. Setae on head capsule more or less constant in position. Antenna (Fig. 3, Ant) small, membranous, two-segmented, located at the distal end of frontal suture. Basal segment with three spinules. Ocellus (Fig. 3, Oc) black, amorphous, located close to basal antennal segment. Clypeus wide and short, membranous, without setae. Labrum (Fig. 3, Lbr) membranous, subtriangular; clypeo-labral suture faint, lyre-shaped epipharyngeal rods visible through membrane. The labrum bears seven pairs of setae and a pair of sensory punctures. The labrum-epipharynx (Fig. 6) with nine setae arranged in sets of three. Mandibles with teeth apically and with two setae and a sensory puncture on dorsal surface. The teeth can best be seen in a second or third instar larva, for in a mature larva they are commonly worn down. The outer margin is characteristically notched. Maxilla (Fig. 5) consists of a small finger-like cardo (Cdo) and a bulbous stipes (Stp). The inner margin of the latter is strongly concave. It bears three setae on the outer margin and five spines on the malar lobe (M). The palpus is two-segmented, the basal segment bearing a small spine on the dorsal (buccal) side. The apical segment bears a number of fine pipillae at the tip. The labium with fused mentum and submentum (Fig. 4) sub-triangular in shape, with setation as follows: three pairs of setae on fused mentum and submentum, one pair of setae, six spinules and one pair of sensory punctures on labium. Labial palpi one-segmented.

Tergum of prothorax (Fig. 1) of one piece, with five to six pairs of setae not constant in position. Hypopleurum with two setae, parasternum with five setae. Terga of meso- and metathorax consisting of two pleats, prescutum and scutum-scutellum; prescutum restricted to dorsum, no setae; scutum-scutellum with a row of setae. Alar area of metathorax with three setae and epipleurum

PLATE VII.



SMICRONYX UTILIS BUCHANAN

- Fig. 1. Mature larva.
 Fig. 2. First abdominal segment. Aa, alar area; Epp, epipleurum; Eu, eusternum; Hv, hypopleurum; Pa, parasternum; Psc, prescutellum; Psct, postscutellum; Sc, scutum; Sct, scutellum.
 Fig. 3. Head capsule. Ant, antenna; Lbr, labrum; Oc, ocellus.
 Fig. 4. Labium, mentum and submentum.
 Fig. 5. Maxilla. Cdo, cardo; M, malar lobe; stp, stipes.
 Fig. 6. Labrum-epipharynx.
 Fig. 7. Egg.
 Fig. 8. Pupa.
 Fig. 9. Mandibles of first, second, third, and fourth instars, showing relative size.
 Fig. 10. Flower head of poverty weed showing mode of oviposition by beetle.
 Fig. 11. Seed of poverty weed showing method of escape of mature larva.
 Fig. 12. Seed of poverty weed showing fleshy cotyledons and newly hatched larva.
 Fig. 13. Seed of poverty weed showing result of infestation by snout beetle.

with one seta. Hypopleura, parasterna, and eusterna with one, five, and two setae respectively. Parasterna and eusterna with cuticular teeth directed caudally. The thoracic and abdominal sterna form the crawling surface of the larva. The first abdominal segment (Figs. 1 & 2) consisting of the following: prescutum (Psc) bulging, restricted to dorsum, no setae; scutum (Sc) short, extending onto lateral aspect, no setae; scutellum (Sct) with a row of setae; post-scutellum (Psct) small, faintly demarcated, restricted to caudo-lateral margin, no setae; alar area (Aa) with two setae; epipleurum (Epp) with one seta; hypopleurum (Hy) triangular, one seta; parasternum (Pa) caudo-lateral of eusternum, one seta and cuticular teeth; eusternum (Eu) with cuticular teeth and a pair of setae on each side. Segments two to seven similar to first. Tergum of eight, nine, and ten of one piece. Setation of eight and nine similar to preceding. Segment ten without setae.

Pupa (Fig. 8). The pupa is 3 mm. in length, snowy white, the eyes pink. Owing to the fact that only one specimen was successfully reared to the pupal stage, a detailed study of the pupa was found impossible.

LIFE HISTORY

The adult beetles appear the first week in June when poverty weed plants begin to blossom. For a time, a week to ten days, they are found feeding freely on the plants, particularly the flowering parts. Copulating pairs are normally not found before June 10. Oviposition, which begins about June 20, was observed on several occasions. A small circular hole is gnawed through the bract of the involucre and through the ovary wall (Fig. 10). Through this opening an egg is deposited into the young, fleshy ovary. In the numerous cases examined, egg disposition had been in the distal end of the ovary, i. e., near the style. It appears that never more than one egg is deposited in a single ovary. The incubation period lasts from a week to ten days, no doubt fluctuating with air temperature. The newly-hatched larva (Fig. 12) immediately begins to feed on the fleshy cotyledons of the embryo. When the larva becomes mature, the embryo has been completely consumed. Measurements of the head capsule and the mandibles (Fig. 9) of sixty-one larvae indicate four instars. Growth is very rapid, for by the middle of July the larva may be full grown. Emergence takes place through a large opening made by the larva near the base of the ovary (Figs. 11 & 13). Larvae continue to emerge for about a month, but after the middle of August emergence is complete, and after that only empty husks are to be found in the flower heads of the weed. Immediately upon emergence, the larva drops to the ground and buries itself. The winter is spent in the upper two inches of soil; very rarely are larvae found at a greater depth. Pupation probably takes place toward the latter part of May and lasts not longer than a week. This conclusion is arrived at from the following: overwintering larvae were quite numerous in the rearing containers on May 20, while adult beetles appeared the first week in June.

ECONOMIC IMPORTANCE

Poverty weed is a native perennial found from Manitoba to British Columbia and south to Mexico, occurring usually on heavy gumbo land which is rather low and somewhat alkaline. Outside its native habitat, it is often found in pastures and cultivated fields on high and well-drained land. In the Prairie Provinces it is most prevalent in the Eston-Kindersley-Rosetown area and the Regina-Moose Jaw-Weyburn area in Saskatchewan, and around Brooks in Alberta. Saskatchewan has more of this weed than the other provinces together. Experiment Stations in Nevada, Colorado, the Dakotas, Wyoming and Montana report it. It appears that its prevalence decreases to the south.

Locality	Collector	Date	% of seeds naturally sterile	% of seeds of viable	Number examined	Remarks
Rush Lake	W. S. Chepil	Sept. 22, 1937	56.25	0	16	
Eastend	W. S. Chepil	Sept. 22, 1937	70	5	80	
Lucky Lake	A. G. Thompson	Sept. 1, 1937	66.6	33.3	3	
Snupe Lake	E. Reeke	Aug. 18, 1937				
Eyre	L. J. Hutchison	June 5, 1940				no seeds
Swift Current	C. Beveridge	June 27, 1940				no seeds
Trossachs	W. G. Palmer	June 28, 1940				
Pinkham	L. Rasmussen	July 12, 1940	28	0	25	
Radville	W. G. Palmer	July 13, 1940	14	30	100	
Rosetown	P. R. Pederson	July 16, 1940	80	10	20	
Rouleau	W. G. Palmer	July 16, 1940	0	0	2	
Macklin	W. E. Walker	Aug. 10, 1940	25	26	50	
Maple Creek	S. E. Clarke	Sept. 10, 1940	25	0	100	vigorous plants
Val Marie	S. E. Clarke	Aug. 15, 1940	8	84	25	
Walpole	L. J. Hutchison	June 10, 1940	70	30	100	no seeds
Fairlight	L. J. Hutchison	June 10, 1940				% estimated
Summerberry	L. J. Hutchison	June 10, 1940				% estimated
Yeoman	L. J. Hutchison	June 10, 1940	12	56	25	% estimated
Regina	J. G. Rempel	June 20, 1940	10	0	110	
Regina	Wm. Shevchenko	July 12, 1940	34	0	50	

Table I, showing the degree of infestation of poverty weed by *Smicronyx utilis* in Saskatchewan.

The plant is herbaceous, rough, six to twelve inches high, flowering from June to August, and ripening seeds on the same flowers a month later. The leaves are thick, entire, rough-hairy, oblong-linear, the lower ones opposite, the upper alternate. The flowers are inconspicuous, drooping, short stalked, one-sixth of an inch across, situated in the axils of the upper leaves. The seeds are pear-shaped, yellowish-brown to olive-green, mealy on the surface, slightly flattened, none to three in each flower head.

The plant has a rank odour and very extensive rootstocks. It propagates mainly by the abundant underground runners since seed setting is poor. It spreads slowly.

Although not as prevalent as some of the other bad weeds, it is one of the most persistent and most difficult to eradicate. Even three years of continuous summer fallow will not completely eradicate this weed, although the infestation will be greatly reduced. This is due to the fact that the plant is slow growing, seldom exhausting its roots, and can live almost dormant under serious competition with other plants or during long periods of unfavorable conditions.

In the summer of 1936 the junior author noticed the presence of a small curculionid larva in the seeds of poverty weed around Regina. Further examination disclosed that of the well-developed seeds nearly one hundred per cent were infested. As has already been pointed out, the infestation results in complete destruction of the embryo, thus rendering the seed sterile. An examination of seeds gathered in various parts of the province disclosed that the distribution of the beetle is widespread, although the degree of infestation varies markedly (table I). A complete survey of the distribution and prevalence of both poverty weed and *Smicronyx utilis* would be desirable. The introduction of the beetle into areas where it is not present would appear to be quite feasible and possibly of considerable economic importance.

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THE COCKROACH *SUPELLA SUPELLECTILIUM* (SERVILLE) IN QUEBEC (ORTHOPTERA, BLATTIDAE).

This cockroach was found on November 2 last in a house in the City of Montreal by Mr. E. R. Bellemare. Immature individuals as well as adults were numerous. Egg cases were also found attached to the sides of crevices and other small openings in the joints of the woodwork. The males are very active and hard to capture as they fly readily at the approach of danger. This is the first record for Quebec and perhaps for all Canada.

Gustave Chagnon,
University of Montreal.

NOTES ON NEARCTIC TABANINAE (DIPTERA),
PART I. *STENOTABANUS*, *ATYLOTUS*, AND *TABANUS* S. STR.

BY CORNELIUS B. PHILIP,
Hamilton, Montana

Following are comments, descriptions, or new information on species of Nearctic Tabanidae, anticipating compilation of a catalog of the family for the region. Also included is a description of a new species from Mexico which may be taken ultimately in the extreme southwestern United States.

Stenotabanus flavidus (Hine). Allotype ♂, 14.5 mm. Closely resembles the female in all respects, except for the usual sexual differences, and the distribution of the black hairs on the abdominal tergites much more restricted. Head rather large, eye facets in upper half moderately enlarged, not paler than the lower, with scattering, minute hairs. Vertical tubercle small, yellowish, raised slightly above the upper eye level, anteriorly denuded, shining; vestigial ocelli crowded and indistinct; a few dark, decurved hairs posteriorly. Antennae and palpi very slender, the latter with no black hairs. Subpaulets bare. Abdomen elongated and attenuated, the middorsal pale triangles and pale incisures prominent.

Santa Rita Mts., Ariz., July 19, 1938, D. W. Craik. In the University of Kansas collection. Another with same data in the author's collection.

Atylotus incisuralis (Macquart). The type of this overlooked species, in the British Museum labelled "America", is "very denuded and greasy" according to Mr. Oldroyd, but through his redescription the writer was enabled to forward ordinary variants of *A. insuetus* (O. S.) which encompassed not only this yellowish-red form, but *A. intermedius* (Walk.) from Hudson Bay as well. The vestiture of *incisuralis* is pale yellow, indicating the present deeper body colors are intensified by greasing; "eyes are rusty brown with vestiges of a single transverse line opposite lower callus . . . R₁ with short but distinct appendix." The normal abdominal pattern cannot be determined, but is now "blackish with orange side spots and segmentations."

The species is one of the most variable in the Nearctic fauna, and attempted splitting on few specimens is extremely hazardous. On present information neither *insuetus* nor *intermedius* go beyond the range of ordinary variation, but *utahensis* Rowe and Knowlton and *tingaurens* Philip represent two significant and distinct extremes, and may be retained as subspecies for the present until other divergence, including both sexes, indicates lack of any value in their further retention.

Tabanus aar * n. sp.

Length, ♀ 18.5-22.5, ♂ 18 and 20 mm. Robust, the abdomen relatively elongate and bluntly rounded, the body and appendages testaceous or golden brown to brownish, rufous, with only suggestions of middorsal, small, pale, abdominal triangles, the wings faintly tinted, especially along the veins, but never as pronounced as in *turbidus*. Basal part of third antennal segment chunky, rather broad, subequal in length to the annuli, not as excised dorsally as in *turbidus*, but the dorsal angle prominent.

Holotype ♀, 20.5 mm. Eyes bare, (relaxed) two narrow green bands on a purple ground, the upper divergent dorsad outwardly. Front yellowish pollinose to gray above, narrow, convergent below, height about 8.5 times the basal width; callosity reddish, about twice as tall as wide, narrowed above into a widening, concolorous, prominent, midfrontal ridge, reaching about two-thirds the height of the front, and furrowed on the disc. Subcallus and cheeks deep yellow pollinose, paler on the face and yellow hirsute below. Antennae and palpi deep reddish, latter covered with short, appressed, yellow and black

*From an Indian word denoting the golden eagle.

hairs, and elongated, just short of the tip of the proboscis, gently tapered, not swollen basally and less blunt apically than in *turbidus*.

Dorsum of thorax deep, dusty reddish, with pale lines only suggested anteriorly and covered with fine, appressed, yellow and rufous hairs intermixed, dark brown patches at the base of the scutellum, post-alar ridges, and inferior portions of the prescutal lobes; scutellum concolorous with thorax, vestiture rufous and blackish on disc, yellow on outer margins. Pleuræ, coxæ, and vestiture deep yellow to brown.

Legs uniformly brown with deep rufous hairs. Wings faintly tinted with yellow, narrowly darker along the vein margins, and especially at the base of R_4 ; cell R_5 broadly open, no spurs; tegulae are contrasting dark brown, their long inner bristles bronzy, the outer short ones black. Humeral plates with appressed black hairs.

Abdomen rather elongate with sides subparallel, bluntly rounded apically, slightly lighter in color than thorax, covered with appressed reddish hairs darker laterally, and with narrow yellowish incisures which widen into small, indistinct, grayish triangles in the middle, more definite in certain lights. Venter uniformly reddish, including the vestiture.

State College, Mississippi, July 7, 1933, R. A. Luter. In the collection of the author, through courtesy of Prof. R. E. Hutchins.

Allotype ♂, 20 mm. "Head very large, eyes bare, enlarged facets occupying about $\frac{3}{4}$ the total area. Vertical tubercle small, not denuded, reduced below the upper level of the eyes. Antennae deep brown, like those of the ♀ in shape, but more slender, the first segment distally, a little taller than the third segment at the dorsal prominence (basal segment of latter subequal in length to annuli). Palpi dull brownish, a little swollen (.48 x .96 mm.), apically (slightly) pointed, and covered with long blackish (and brownish) hairs. Face, legs, and remainder of body more or less concolorous, dull brown, the (small) middorsal abdominal triangles indicated by indefinite pollinose patches—a little more distinct, but the narrow yellowish haired borders less distinct compared to the ♀, the short black abdominal hairs more pronounced, especially the antero-median patch on tergite 2. Pleural and leg hairs darker than in ♀. Wings appear somewhat teneral and therefore paler than in the ♀" (see remarks for paratype ♂ below).

Florida, through Ward's Natural Science Establishment. No date. Described as allotype ♂ of *turbidus* (Bull. Brook. Ent. Soc., 31: 195) from which part of above is quoted. Also bears label "T. tener O. S." by an unknown determiner.

Paratypes: GEORGIA, ♂ and ♀, Okefenokee Swamp, 8-3-34, R. H. Beamer; ♀, same locality, 7-30-34, M. E. Griffith. FLORIDA, 2 ♀♀, no other data; ♀, Bonita Springs, 7-31-34, R. H. Beamer; ♀, Hilliard, 8-19-30, R. H. Beamer; ♀, Lake County near Crow's Bluff, 8-29-38, Hubbell-Friauf, 4 ♀♀, Lake County, near Astor, 8-28-38, Hubbell-Friauf, ♀, Lake County, 5.5 miles northeast Cassia, 8-26-38, Hubbell-Friauf, ♀, Marion County, near Dunnellon, 8/3-4/38, Hubbell-Friauf, 3 ♀♀, Marion County, Ocala National Forest, Juniper Springs, 9-7-38, Hubbell-Friauf, ♀, Alachua County, Newberry, 7-27-24, F. W. Walker, ♀, Manatee, 8-24-25, J. H. Hubbell; 5 ♀♀, Hillsborough County, Little Manatee River, 8-15-38, Hubbell-Friauf; ♀, Hillsborough County, State Park, 8-16-38, Hubbell-Friauf; ♀, Lee County near Estero, 8-12-38, Hubbell-Friauf; ♀, Walton County, DaFuniak Springs, 8-2-35, J. H. Hubbell; ♀, Polk County, Lake Streaty, 8-10-38, Hubbell-Friauf; ♀, Brevard County, Eau Gallie, 8/7-8/38, Hubbell-Friauf, "taken at light"; 15 ♀♀, Monticello, 7/8-27/35 and 8/1, 16/35, G. B. Fairchild, "on cow." MISSISSIPPI, ♀, Orange Grove, 7-10-34, R. H. Beamer. In the collections of the Berlin, Vienna, British, and the U. S. National Museums, Museum of Comparative Zoology, Universities of Michigan

and Kansas, California Academy of Sciences, Rocky Mountain Laboratory, G. B. Fairchild, L. L. Pechuman, T. G. Aitken, and the author. Fairchild writes that many of his specimens were crepuscular in habits, and one of the paratypes was taken at light.

Pinned specimens are excessively addicted to "greasing", but natural colors are readily revived by an overnight's immersion in amyl acetate.

Chief variation is found in size and depth of color, particularly in antennae, a few females having very dark brown third segments, while those of both males are darker than the average female. The male paratype shows the same tinting of the wings as the female, and also the more pronounced suggestion of indefinite pale triangles seen on the abdomen of the allotype, but which still do not approach those of even rubbed specimens of *turbidus*.

No intergrades with the latter were found, from which this species differs in broader, usually less excavated third antennal segment, less distinct thoracic lines and vein margination of the wings (the cells in *turbidus*, particularly the discal, often show a whitish cast), the merest suggestions or none at all of the contrasting pale abdominal triangles and pale dorsal and ventral incisions of *turbidus*, and in the concolorous plurae and scutella, which are whitish pollinose and pilose in both sexes of *turbidus* (except for dark hairs on the prescutal lobes and base of the scutellum); the tegulae and their bristles are pallid in the latter, dark to bronzy in *aar*. The eye banding is the same.

The holotype of *aar* and a typical female *turbidus* (Fla.) were compared for the writer with Wiedemann's type female of *turbidus* by Dr. Max Beier of the Vienna Museum, and the last two found in agreement, although Osten Sacken (1878) had observed the type to have "very pale colored wings". Stone's (1938) redescription of *turbidus* appears to be tempered by inclusion of *aar*. He also suggests the possible relationship of *Tabanus ferrugineus* P. de B. with *turbidus*. While the size and very meager description of *ferrugineus* also suggest *aar*, the "yeux verts brillants" do not agree with the green bands on a purple eye ground of the latter; Palisot's type is stated as "très probablement perdu" in correspondence with Dr. Seguy of the Paris Museum, so that it is impossible to determine the correct relationship.

Discovery of the true male of typical *turbidus* removed all doubt as to the distinctness of *aar*. Because the author was mistaken in his previous identification of the male of *turbidus*, redescription of a typical specimen from Liberty County, Fla., May 29, is here provided to facilitate comparison with the above.

Tabanus turbidus Wied. ♂, 21 mm. Head large, eyes bare, but differentiation of large facets not as marked as in *aar*, about two-thirds total area. Vertical tubercle smaller, more reduced. Antennae, face, and palpi and their vestiture more yellowish. First antennal segment much taller than basal portion of third segment; latter relatively narrow, longer than annuli and markedly excavate. Second palpal segment about as thick as in *aar* but apically more produced, with a prominent decurved tooth. Thorax brownish with more prominent pale lines; wings with pronounced dark vein margins and whitish discs to the cell membranes; tegular bristles pallid compared to the bronzy ones of *aar*; legs reddish, the femora darkest; pleural, scutellar, and coxal hairs creamy. Abdomen more tapering and pointed than in *aar*, mahogany red, darkest caudally, the incisions (including venter) and prominent middorsal triangles contrasting pale pilose and pollinose; tergite 2 without the prominent median patch of black hairs anteriorly, and the triangle crossing only half its width while those on 3 and 4 cross the entire tergites.

T. catenatus Walker. Osten Sacken (1878, p. 227) must have erred in his judgment of this species based on study of "a pale-colored variety of *T. turbidus* Wied.", and "*T. giganteus (lineatus F.)*", as the Massachusetts type was later associated by Hine with *orion* O. S. as stated by Stone (1938). The pale "*turbidus*" may have been actually a specimen of *T. aar* described above.

T. cheliopertus Rondani. Complete intergradation in size and tinctorial characters in extensive material impelled Stone (1938) to sink *subfronto* Philip as a complete synonym of this. As the tinctorial differences of completely yellow haired pleurae, fore coxae, mid and hind femora, and venters, with the underlying yellow integument unobscured by pruinosity, and reduced wing maculations give this form a much yellower and different appearance from the typical, darker, and usually larger form, the writer retains the name as a subspecies despite the lack of sharp demarcation in extensive material. The basal dark bands on the dorsum of the abdomen are absent or only suggested, while the hairs of the fore femora and palpi are predominantly (in the holotype entirely) yellow. A few additional small specimens like the original series have been received from Florida.

Tabanus cingulatus Macquart. This was questionably synonymized with *T. cheliopertus* Rondani by Stone (1938). This is hardly possible, however, as the type locality (Philadelphia) is too far north. The writer leaves it there, nevertheless, for lack of better assignment.

Tabanus crassicornis Wiedemann. The definite whereabouts of the type of this supposedly American species is unknown. In the Kiel Museum is part of a specimen from Fabricius' time concerning which Dr. O. Schröder writes, "one piece designated by Fabricius himself as *rufiventris* appears to be identified with *crassicornis* Wied. I cannot say with certainty whether this specimen could be designated as the type," and later, "there is only one specimen of *T. rufiventris* extant, which bears on the pin the statement of name written by Fabricius himself. Since early days this specimen has been classified in our collection with *T. crassicornis*. By whom this was done, and whether correctly, I do not know. Since I have in the museum no specimens of *T. rufiventris* from the East Indies or of *T. crassicornis* from America, I have no possibility for a comparison and for determination of where our specimen named by Fabricius himself came from." (Translation.)

As Stone (1938) has stated, the description does not fit any Nearctic species, but will have to be listed with doubt until more definite information is uncovered.

T. fulvofrater Walker. The doubt remaining as to the synonymy of this with *T. fulvulus* Wied. has been removed by the following statement from Mr. Oldroyd, "You are quite right in assuming that the black colour of the antennae and palpi was in part due to grease. After cleaning they appear dirty whitish, but do not show any reddish tinge."

T. fumipennis Wiedemann. *T. dorsonotatus* Macquart is a synonym according to a homotype, kindly compared by Mr. Oldroyd, which differs only in some fading due to the age of Macquart's type. As noted by Osten Sacken (1878) and Stone (1938), the type carries Macquart's manuscript label of "*dorsomaculatus*", which name he apparently changed for publication; it also is labeled "Carol. Maid." (Note: Macquart described a *T. dorsomaculatus* from Algeria on a preceding page in the same publication.)

T. giganteus De Geer. A male in the Bigot collection in the British Museum, labeled *caesiofasciatus* by Macquart, may or may not be his type of this synonym, as it lacks his usual hand-labels "N. Sp." according to Oldroyd.

T. johnsoni Hine. The male is smaller but closely resembles the female. The upper three-quarters area of the greatly enlarged eye facets gives the head an exaggerated appearance. The vertical tubercle is small, elongated, and yellow pollinose. Antennae reddish, palpi yellowish, rather slender. Thorax, appendages, and abdomen as in the female, the abdomen strongly attenuated.

T. moderator Stone. Allotype ♂, 17.5 mm. Readily associated with the female on basis of the abdominal and wing patterns and predominantly white mid and hind tibiae. Head large, eyes bare, area of enlarged facets strongly differentiated, about two-thirds the total area. Vertical tubercle gray pollinose,

small, depressed. Antennae black, narrower and less excavated than in the female. Second palpal segments about twice as long as thick, with an apical, slightly downward directed nipple, very few black hairs among the white. Outer fore-tarsal claws but little elongated. Mid and hind tibiae black only on the distal fourth. The middorsal white triangle on the posterior margin of tergite 2 very reduced, the others large and plain. Vein R_2+3 plainly margined with brown as in the female.

State College, Miss., May 6, 1939, T. W. Ramsay, through courtesy of Professor R. G. Hutchins.

The same characters (excepting frontal) separating the females from *molestus* will also distinguish the males.

T. novae-scotiae Macquart. Comparison with *T. actaeon* O. S. forwarded to Mr. Oldroyd leaves little doubt that Osten Sacken was correct in suggesting this as a small *actaeon* in spite of the "golden yellow" pubescence on the triangles, which Oldroyd states as "not at all conspicuous," with the further remark that "the type can be run down to *actaeon* in Stone's key without much difficulty." Because none of the specimens studied by the writer show more than pale yellowish hairs on these spots, and the synonymy would cause the replacement of a well established name, it is still associated with a question, the least doubt remains. Stone (1938) listed the name among his unrecognized species.

T. proximus Walker. The label on the type reads "U.S.A., St. Louis, E. Doubleday" according to Mr. Oldroyd, the published record of Florida apparently being "an invention of Walkers."

T. pubescens Macquart. Included by Stone (1938) among his unrecognized species. Type, from America and according to Mr. Oldroyd "dusty, and very denuded, 20 mm., . . . frons, narrow, 7-8 times as long as width at base, widening slightly towards vertex, basal callus rather long," which, with his other remarks, and Kröber's assignment as a possible *Chelommia*, indicates this as from Neotropical, not Nearctic, "America".

Tabanus rufrostratus Walker. Oldroyd writes, "the specimen of *rufrostratus* is not unquestionably the type . . . the only label dating back to Walker's time is a written one 'Georgia' . . . I have little doubt that this is the type, but the usual MS label giving the specific name is missing. Your specimen (*tener*) agrees well . . . the femora are darker, the tarsi lighter . . ."

Of comparison of this (in addition to related species) with the type of *T. unicolor* Macq., he states further: ". . . it may well be the same . . . there are no apparent differences, but the type is very much rubbed." Osten Sacken (1878, p. 228) referred to this species "as a hopelessly doubtful one" on study of the type. While it can hardly be "cancelled" as he suggests in view of its preoccupation by Wiedemann, the lack of any differentiating features on comparison seem adequate to remove the question of its synonymy with *rufrostratus*.

Tabanus sparvus subsp. *milleri* White. Allotype ♂, 9 mm. Except for sexual characters, closely resembles the female; body blackish dorsally and with a grayish bloom ventrally, the sublateral abdominal spots somewhat less diffuse and angular, with no evidence of middorsal triangles, the incisures very narrowly yellowish. Head very large, subhemispherical, enlarged facets about two-thirds of total eye area, deep chocolate brown like the frontal triangle and entire antennae; a single narrow purple stripe across the area of small facets (relaxed). Vertical tubercle very small and depressed. Third antennal segment relatively wide basally, ratio of height to length including annuli as 4:9, hardly excavated dorsally. Second palpal segments pale yellowish, chunky and swollen, abruptly abbreviated apically into a short downward pointed nipple, covered with white and a very few scattered black hairs. Vestiture of entire venter, coxae, and femora white, but mixed with black on tibiae; hind-tibial fringe predominantly blackish; integument of femora and apical half of fore tibiae blackish, remainder of

tibiae pale reddish, fore-tarsal claws subequal. Dorsum of thorax dark, without evident lines, covered with erect black and appressed yellow hairs. Wings hyaline, venation normal.

"W'loo Twnp.", Athens Co., Ohio, June 17, 1939, W. C. Stehr, through courtesy of the collector.

A specimen from State College, Miss., is in complete agreement except the abdominal spots smaller and the antennae uniformly bright yellowish instead of brown. The wider, uniformly colored antennae, more elongate and slender annuli, particularly apically, chunkier and paler palpi, and blackish femora distinguish both from a *pumilus* male from Pennsylvania in which the antennae are more slender (1:3), the annuli correspondingly heavier and abruptly darkened though not as black as in most females, the palpi deeper yellow and more gradually tapered distally, and the femora pale reddish and concolorous with the tibiae (except the darkened distal portion of the fore pair). The vertical tubercle in this is also more prominent. These differences also serve to separate males of *pumilus* from *sparus* which Stone (1938) records as "not positively identified" (see Philip, 1936). The single eye stripe in the *pumilus* male appears heavier than in *milleri*.

T. tenessensis Bigot. Mr. Oldroyd comments as follows, after comparison of forwarded specimens of *molestus* and related species: "though this is in bad condition I see no reason to doubt Hines' (MS.) conclusion that it is *molestus* Say. It is the typical form, with grey pleural hairs."

SUMMARY

Tabanus aar n. sp. (♀, ♂) is described from the Gulf Coast Region. Described for the first time are the males of *Stenotabanus flavidus* (Hine), *T. moderator* Stone, *T. johnsoni* Hine, and *T. sparus* subsp. *milleri* Whit., and the concept of the male of *T. turbidus* Wied. is corrected. Notes on synonymy of other species are provided, and *T. pubescens* Macq. is considered to be Neotropical, hence is dropped from the Nearctic list.

The writer has been greatly indebted, among others, to R. R. Parker, R. H. Beamer, W. H. Stehr, J. N. Knull, L. L. Pechuman, T. H. G. Aitken, C. E. Mickel, W. L. Jellison, M. T. James, G. F. Knowlton, C. W. Sabrosky, the officials of the Canadian Division of Entomology, J. C. Bequaert, Donald MacCreary, Max Beier of the Vienna Museum, O. Schröder of the Kiel Museum, Richard Frey of Helsingfors, E. Seguy of Paris, K. Delkeskamp of the Berlin Museum, Nathan Banks, G. B. Fairchild, E. S. Thomas, P. W. Fattig, O. Kröber of Hamburg, Mrs. E. W. Wilburn, Miss Ada L. Olson, and Mrs. Josephine Mackerras of Canberra City, Australia, for past and present courtesies. Drs. Alan Stone, of the U. S. National Museum and H. Oldroyd of the British Museum have been particularly unstinting of their time and knowledge in connection with these tedious catalog studies.

Except as otherwise stated, types in this and Parts II and III to follow, are in the collection of the author.

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SOME NEW NOCTUIDS FROM NEW YORK STATE WITH NOTES ON
OTHER WELL KNOWN SPECIES (LEPIDOPTERA, PHALAEENIDAE,
AMPHIPYRINAE)

BY JOHN G. FRANCLEMONT,

Cornell University, Ithaca, New York

The following notes and descriptions result partly from this summer's collecting by Mr. L. R. Rupert and myself and from previous studies in the group.

Chytonix Grote

This genus, as delimited by McDunnough in his 1938 Checklist, contains a few incongruous elements which do not rightfully belong in it but are better placed in the genus *Oligia* Hubner. They are *chlorostigma* Harvey, which is an *Oligia* in all characters, and *divesta* Grote, which though aberrant is better placed there than in *Chytonix*. This will restrict the genus in North America to *palliatricula* Guenee, *iaspis* Grote, *parvimacula* Smith, *sensilis* Grote, and the new species described below. The only other species which are congeneric with the genotype, *iaspis*, are the Asiatic species *albonotata* Staudinger and *nigrobasilis* Hampson. The other species which have been placed in this genus will find their places in other genera when a revision of the group is undertaken.

Chytonix rupertii n. sp.

Head and thorax clothed with a mixture of black and brown scales tipped with white; tegulae clothed mostly with blackish scales tipped with white. Abdomen grayish, the dorsal tufts composed of blackish scales tipped with white. Fore wing with the basal area blackish; the median area grayish shot with brown, except the lower third which is blackish; terminal area of the same color as the upper two-thirds of the median area; basal line not evident; antemedial line incurved below costa, then sharply outcurved, then oblique to vein 1st A, where it forms a tooth and is then outwardly and inwardly curved to inner margin; postmedial line strongly bent outward from below costa, then irregularly, outwardly sinuous to vein Cu₁, then incurved to inner margin; claviform a black dash, followed by a white bar, the two together extending from the antemedial to the postmedial line, below this is the blackish area referred to previously, terminal line an irregular brownish shade, blackish at the costa; the veins lined with black in the terminal area; the median shade indicated only on the costa by an irregular blackish spot between the two ordinary spots; orbicular and reniform outlined by broad pale shades, which are in turn outlined outwardly by a fine black line; the reniform constricted at the middle on both sides, with a black shade in the lower half; the orbicular elliptical and oblique, brownish in the central area. Hind wings smoky blackish, darker towards the outer margin. Wings below shining gray with a common postmedial line.

Expanse: ♂ 28 to 30 mm., ♀ 30 to 34 mm.

Male genitalia symmetrical; tegumen broad, uncus moderate; vinculum moderately long and narrow; valves moderate, no corona, but with the apical portion covered with slender spines, the pollex moderate, the clasper and ampulla weak; the aedocagus moderate, with a broad patch of short recurved spines at the apical end; vesica with a small cluster of spinules.

Holotype, ♂, Versailles, New York, August 12, 1940 (L. R. Rupert), [in Coll. Franclemont].

Allotype, ♀, Versailles, New York, August 12, 1940 (L. R. Rupert), [in Coll. Franclemont].

Paratypes, 1 ♂, 3 ♀♀, Versailles, N. Y., August 11, 1940 (L. R. Rupert); 6 ♂♂, 9 ♀♀, Versailles, N. Y., August 12, 1940 (L. R. Rupert); [3 in Coll.

PLATE VII.

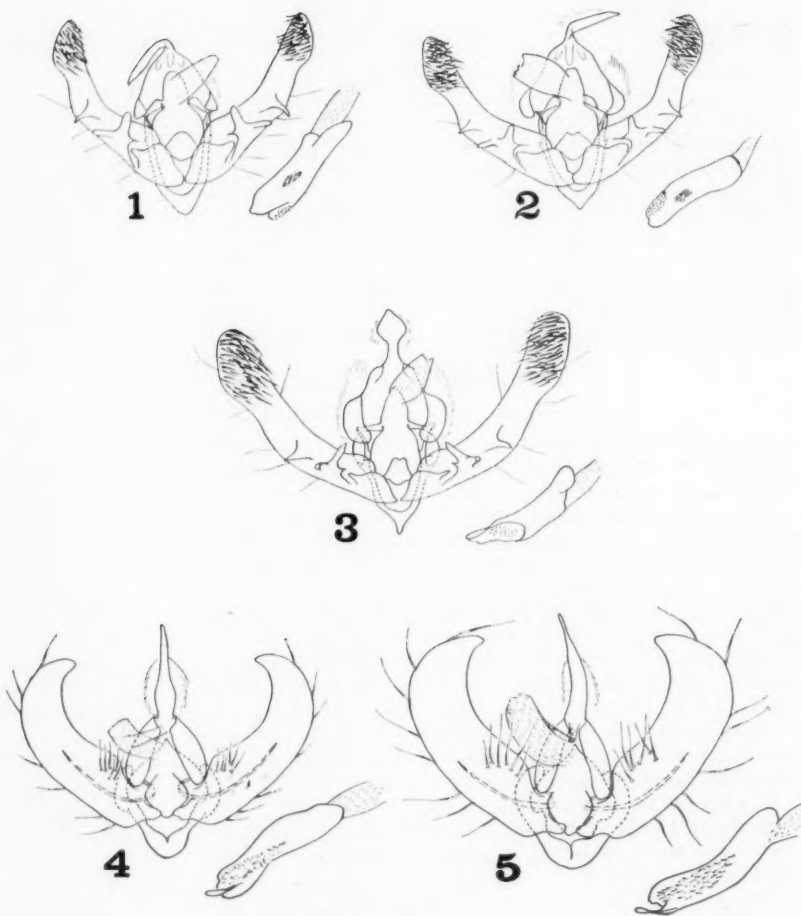


Fig. 1. Male genitalia of *Chytonix sensilis* Grt.
 Fig. 2. Male genitalia of *Chytonix rupertii* n. sp.
 Fig. 3. Male genitalia of *Chytonix palliatricula* Gn.
 Fig. 4. Male genitalia of *Amphipyra brunneoatra* Strand.
 Fig. 5. Male genitalia of *Amphipyra glabella* Morr.

Franclemont; 5 in Coll. Rupert; the remainder will be distributed to various museums.]

The males of this species may be distinguished at once from those of the *palliatricula-iaspis* complex, which have very narrowly laminate antennae, by their much wider laminate antennae; in this character they agree with *sensilis*. From *palliatricula* and *iaspis*, the latter which they rather resemble superficially, they further differ by the course of the postmedial line, which is rather evenly curved from below costa to inner margin in that species, and in the new species is distinctly inwardly curved at vein Cu_2 to the inner margin; in this they too agree with *sensilis*, but may be distinguished from that species by the blackish basal area and the blackish lower third of the median area, in this they agree with *iaspis*. All the specimens before me show the white bar or spot in the submedian fold; this bar or spot is often missing in specimens of *Sensilis* (form *submediana* Strand). The genitalia differ from those of *palliatricula* and *iaspis* by their smaller size and narrow uncus, that of the aforementioned species being trigonate; from *sensilis* they differ in their broader tegumen, and in that the ampulla and clasper are not evidently united as they are in *sensilis*.

I take great pleasure in naming this species after its collector, my very intimate friend and the companion on many collecting forays, Mr. Laurence R. Rupert.

The North American species of the genus *Chytonix* may be listed as follows,

CHYTONIX Grt.

palliatricula Gn.

form *iaspis* Gn.

ruperti n. sp.

sensilis Grt.

form *submediana* Strand

macdonaldi Benj.

parvimacula Sm.

Amphipyra pyramidoides form *carbonita* form. nov.

Head and thorax black, fore wings black with a slight purplish sheen; the postmedial line defined by white, the terminal line by a series of white points at the base of the fringe; orbicular outlined by white, which is in turn outlined by black; these markings more intense than the ground color; other markings obsolete. Hind wings as in normal *pyramidoides*; abdomen blackish.

Holotype, ♂, Ithaca, New York, August 8, 1946 (J. G. Franclemont), [in Coll. Franclemont].

This form may be at once distinguished from normal *pyramidoides* by its intense purplish black ground color, which causes it vaguely to resemble some of the Asiatic members of the genus.

Amphipyra glabella Morr.

Pyrophila glabella Morrison, Proc. Bost. Soc. Nat. Hist., xvii, 153, 1874.

Amphipyra glabella Morrison, Hampson, Cat. Lep. Phal. B. M., vii, 39, 1908.

Head and thorax concolorous with the fore wings, which are shining brownish gray to the subterminal line, which is erect and indicated on the veins by dark points; terminal area paler, contrasting somewhat with the remainder of the wing; the basal and antemedial lines obsolescent; the postmedial line indicated by a dark, often very vague, line, which is sharply excurved from below costa, then evenly curved outwards, then inwardly curved to about vein Cu_2 , then erect to inner margin; the terminal line a series of dark lunules at the base of the concolorous fringe; orbicular and reniform often vague, the former indicated at most by a dark dot encircled by a pale shade, the latter by two dark

dots encircled by a pale shade. The hind wing smoky gray-brown, slightly paler at base; the abdomen concolorous.

Expanse: 32 to 36 mm.

The male genitalia symmetrical; the tegumen broad; the uncus moderately long and stout; the valves broad and simple, curved dorsally at the apical ends; the aedeagus moderate, with a moderate, narrow, rounded projection from the apical end; vesica armed with a number of small, flat spines.

I have seen this species from New York, Pennsylvania, Virginia, Kansas, Manitoba and Alberta; the specimens from the last locality were very kindly loaned to me by Dr. J. H. McDunnough, and I wish to thank him at this time for this courtesy and kindness. The specimens are all rather constant in color, with only the elements of the pattern varying in intensity. I imagine that the Kansas specimens would agree well with the type, which was from Nebraska.

Amphipyra brunneoatra Strand

Amphipyra glabella Ab. 1 Hampson, Cat. Lep. Phal. B. M., vii, 40, 1908.

Amphipyra glabella ab. *brunneoatra* Strand, Arch. Natg., lxxxi, Abt. A, Heft 11, 150, 1921.

Amphipyra glabella race *brunneoatra* Strand, McDunnough, Check List, pt. 1, 93, 1938.

This species is at once separable from *glabella* Morr., of which it has been considered a race, by its darker color and its crisper markings; the contrast between the pale terminal area and the remainder of the fore wing is distinctly more striking than in *glabella*. The fore wing is dark blackish brown to the subterminal line, which is as in *glabella*; the terminal area pale, contrasting greatly with the remainder of the wing; the basal line obsolescent; the antemedial line dark, outlined on inner side by a pale shade, irregularly excurved from costa to submedian fold, then incurved to inner margin; the postmedial line as in *glabella*, but with a very distinct pale shade on the outer side; the ante- and postmedial lines tend to be angled toward one another respectively in the submedian fold, in extreme cases the two lines join, though it is more common for them to be toothed at this point; the orbicular and reniform as in *glabella*, but with the encircling pale shades more distinct. Hind wings as in *glabella*.

Expanse: 30 to 35 mm.

The male genitalia are symmetrical, less robust, and smaller than those of *glabella*; the valves are narrower; the projection on the apical end of the aedeagus is shorter and slightly broader; the spines in the vesica are smaller.

I have seen this species from Arizona, New Mexico, Nevada and California. This species is distinctly western, while the foregoing is more widespread, though tending to be eastern.

From the foregoing discussion, it will at once become evident, that what have been thought to be the races of one species are actually two distinct species.

DR. LEE STRONG DIES IN ARIZONA

The U. S. Department of Agriculture has received word of the death on June 2 of Dr. Lee A. Strong, chief of the Bureau of Entomology and Plant Quarantine, in Tucson, Arizona. Doctor Strong had been chief of the Bureau from the time it was created, in 1934, by the consolidation of the Bureau of Entomology and the Bureau of Plant Quarantine. Previous to that he had been chief of the Bureau of Plant Quarantine and later chief of the Bureau of Entomology. For thirty years he fought the pests that attack plants and animals, and cause annual losses of many millions of dollars in the United States.

Informed of Doctor Strong's death, Secretary of Agriculture Claude R. Wickard said, "In the death of Lee Strong the Department has lost one of its best Bureau chiefs. He was a natural leader, a good administrator, and a fine servant of the people of the United States."

Doctor Strong was born in Russell, Iowa, in 1886, but spent much of his

early life in California. There he was connected with plant quarantine and inspection work for the State Department of Agriculture from 1910 to 1929, except for a year overseas, in 1918-19, with the 537th Engineers, U. S. Army, and for two years (1923-1925), when he was in charge of port inspection for the Federal Horticultural Board of the U. S. Department of Agriculture in Washington, D. C. From 1925 to 1929 he was Assistant Director of the California Department of Agriculture.

In 1929, Doctor Strong accepted an appointment as chief of the Plant Quarantine and Control Administration, later reorganized as the Bureau of Plant Quarantine, of the U. S. Department of Agriculture. In 1933, upon the retirement of Dr. C. L. Marlatt, he became chief of the Bureau of Entomology, and a year later, when the Bureau of Entomology and Plant Quarantine was set up, he was made chief of the consolidated bureau, a position which he held until his death.

Doctor Strong took a prominent part in the preliminary work that led to the organization of the National Plant Board and served as its chairman from 1924 to 1929. He was a member of the American Association of Economic Entomologists, being president in 1935; of the Entomological Society of Washington; and of the Cosmos Club. In 1938 he received the honorary degree of Doctor of Science from Louisiana State University.

Surviving Doctor Strong are his wife, Mrs. Edith Strong, and three children Madeline, Lee A., Jr., and Helen.

Secretary Wickard said that A. S. Hoyt, who has been Acting chief of the Bureau of Entomology and Plant Quarantine during Doctor Strong's illness, will continue in that capacity.

BOOK NOTICES

ANALES DE LA ESCUELA NACIONAL DE CIENCIAS BIOLOGICAS. Vol. I, Nos. 3 and 4 (in one part), 1940. Published by the Instituto Politecnico Nacional, Mexico, D. F.

This admirable publication, edited by Dr. Alfonso Dampf, is devoted entirely to entomology but is part of a series dealing with various aspects of Mexican biology. It is beautifully illustrated and, dealing as it does with the rich and comparatively unknown fauna of Mexico, will be of great importance to students of North American insects. The present part includes a general discussion of the economic importance of insects by F. Silvestri, an elaborate paper on certain scolytid beetles by K. E. Schedl, papers on the cicadellid genera *Phelpsius* and *Texananus* by D. M. De Long and on the Sphingidae of Mexico by O. Mooser, two papers on Thysanoptera by J. D. Hood, a description of the first species of the order Zoraptera to be found in Mexico by C. Bolivar, and a paper on a case of protective resemblance of an orthopterous insect (*Dysonia*) by A. Dampf. De Long describes a species, *Texananus dorothyi*, dedicated to Dorothy Johnson Knull. Is it not permissible to consider this a *lapsus calami* (really *lapsus mentis*), and to alter the name to *T. dorotheae*?

T. D. A. Cockerell,

Boulder, Colorado.

INTRODUCING INSECTS. A BOOK FOR BEGINNERS

By J. G. Needham, Jacques Cattell Press, Lancaster, Pennsylvania. Pages I-V and 1-129. About 85 illustrations. Price \$1.50.

This little volume gives, in every-day language, a little information about 'every-day' insects. Short chapters on some common insects such as butterflies, dragon flies, grasshoppers and crickets, leaf-eating beetles, scale insects and aphids, mosquitoes, insects eating our food, our woollens, our fruits, carnivorous insects and bees, give the beginner a nodding acquaintance with the insect world. The

addition of chapters on why and how to study insects, their control, how to begin a collection and how to rear them, and suggestions for the use of the book help to ripen the acquaintanceship to the point where the transition to the intimacies of entomology can be easily achieved.

R. H. Ozburn

METHODS OF INSECT CONTROL, PART I, INDIRECT METHODS OF CONTROL

Second Edition, revised by Dwight Isley. Burgess Publishing Co., Minneapolis. 121 pages. 1941. Price \$1.50.

This book, mimeographed on one side of each page, has resulted from the author's experience in teaching applied entomology. Based on the assumption that the student is familiar with elementary entomology, it endeavours to give the basic reasons for using different control measures. Insects requiring different methods of control are used as illustrations or problems. Pertinent information as to the destructiveness and biology of these insects is included to explain the control recommendations. To emphasize the 'whys and wherefores' of these recommendations, short summaries are included. A list of literature is appended to each chapter.

Although designed to impress students with the fundamentals of insect control, this inexpensive volume should serve a useful purpose amongst applied entomologists.

R. H. Ozburn

INSECT PESTS OF FARM, GARDEN, AND ORCHARD

Fourth Edition. By L. W. Peairs. John Wiley & Sons Inc., New York. Pages I-XVII and 1-544, 648 figures. 1941. Price \$4.00.

The first edition of this useful publication was published under the authorship of Dr. E. D. Sanderson. The second and third editions appeared under the joint authorship of Sanderson and Peairs. In the present edition the senior author has withdrawn, although the volume is essentially the former "Sanderson and Peairs".

In this edition, the text matter has been brought into line with the steady growth of entomological knowledge during the past nine years. This has necessitated a thorough revision and the inclusion of new material throughout. A summary of the classification of insects, with particular reference to those groups including important pests, is now a feature of the volume. Although this revision has resulted in a volume smaller by nineteen pages than the previous one, the number of figures has been increased by the addition of thirty-nine. Several of the old illustrations have been replaced and others rearranged, with the result that the present edition is exceptionally well illustrated. Although a separate bibliography has not been included, this lack is compensated for, to a greater extent than previously, by an increase in the number of references to the individual insects.

That a fourth edition of this publication has been offered to the entomological world is ample indication of the esteem in which it has been held. The present edition should serve to maintain the reputation established by its predecessors.

R. H. Ozburn

GUELPH PRINTING SERVICE

Mailed Monday, July 7, 1941.

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